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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,066	10/12/2001	Kent B. Thudium	16095.002	1828

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EXAMINER

MARVICH, MARIA

ART UNIT	PAPER NUMBER
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1636

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

9M.

Office Action Summary	Application No.	Applicant(s)	
	09/977,066	THUDIUM ET AL.	
	Examiner	Art Unit	
	Maria B Marvich, PhD	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2, 5, 6 and 9-31 is/are pending in the application.
- 4a) Of the above claim(s) 23-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 5, 6 and 9-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to an amendment and request for continued examination filed 5/24/04. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/24/04 has been entered. Claims 1, 3-4 and 7-8 have been cancelled. Claims 2, 5-6, 10, 12-14 have been amended. Claims 2, 5-6 and 9-31 are pending in the application. Claims 23-31 have been withdrawn.

Claim Objections

Claim 17 is objected to because of the following informalities: SV40, LTR, RSV and SR are abbreviated and should be spelled out for clarity. Appropriate correction is required.

Claim 13 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 5. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 2, 5-6 and 9-22 are objected to as the claims recite a fragment comprising of nucleotides found at positions 1-25 or 1-51 and 775-820 or 741-820 and, therefore, a reference sequence is required to practice the claimed invention. However, there is no reference sequence

identifier number provided in the claims. It would be remedial to insert the sequence identifier number for the sequence referred to alternatively as Figure 1A and figure 1C.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 5-6 and 9-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 5, 9 and 12-13 are vague and indefinite in that the metes and bounds of “inclusive of Figure 1A” are unclear. Inclusive means to incorporate the limits of something else (on-line Dictionary) and it is unclear what limits provided in figure 1A are to be incorporated into the fragment. Furthermore, it is unclear if the meaning of the term “inclusive of” is open (i.e. comprising) or closed (i.e. consisting of). Use of the term “inclusive of” is indefinite as it fails to establish the metes and bounds of the gene sequences encompassed by the claimed language.

Claims 10-11 are vague and indefinite in that the metes and bounds of “depicted in Figure 1C” are unclear. It is unclear how the recited sequence is “depicted in” the figure as “depicted” means that something is portrayed in a picture or using words (on-line Dictionary). Furthermore, it is unclear if the meaning of the term “depicted in” is open (i.e. comprising) or closed (i.e. consisting of). Use of the term “depicted in ” is indefinite as it fails to establish the metes and bounds of the gene sequences encompassed by the claimed language.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 5-6, 9-10 and 12-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants claim a genus of hCMV Intron A fragments comprising sequences having at least 90% sequence identity to contiguous sequences found at positions 1-25 or 1-51 and 775-820 or 741-820.

The written description requirement for genus claims may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant identifying characteristics, i.e. structure or other physical and/or chemical properties, by functional characteristics coupled with known or disclosed correlations between function and structure, or by a combination of such characteristics sufficient to show that the applicant was in possession of the claimed genus.

In the instant invention, applicants teach use of Intron A fragments from hCMV IE-1 gene to direct expression of heterologous coding sequences. The instant specification describes the generation of thirteen CMV Intron A fragments by sequentially greater internal deletions leaving the 5' and 3' nucleotide sequences intact which include part or all of nucleotides 1-25 or

1-51 and 775-820 or 741-820 (figure 3). Eleven of the fragments are able to direct transcription of luciferase to levels greater than full length intron A and one fragment to levels greater than 2-fold over full length intron A (see figure 4). A deletion mutant pCON3 Intron A is taught (see figure 1C) in which ten of the nucleotides between 741 and 820 are substituted. However, the disclosure does not teach any fragments having at least 90% sequence identity to contiguous sequences found at positions 1-25 or 1-51 and 775-820 or 741-820 of SEQ ID 1 that direct expression of coding sequences. There is no actual reduction to practice or clear depiction of what structures or properties are required for generation of an Intron A fragment with 90% identity to the sequences found at positions 1-25 or 1-51 and 775-820 or 741-820 of SEQ ID 1. Neither the instant disclosure nor the prior art provide a correlation between the structures of the recited intron A fragments and their ability to drive expression. Given the diversity of fragments encompassed by the rejected claims and the inability to determine which fragments will also drive expression, it is concluded that the skilled artisan would not be able to reliably envision those other embodiments capable of satisfying the functional limitations of the claims. In an unpredictable art, the disclosure of one species would not represent to the skilled artisan a representative number of species sufficient to show applicants were in possession of claimed genus.

Response to Arguments

Applicants traverse the rejection of claims 1-22 under 35 U.S.C. 112, first paragraph for lack of written description on pages 9-12 in the amendment filed 5/24/03. Applicants argue that relevant identifying characteristics of the recited fragments have been provided in the

specification. Multiple species have been provided specifically in example 2 and figure 4. Furthermore, applicants provide a starting structure (figures 1-3 and Table 1) as well as functional characteristics of increased expression coupled with known and disclosed correlation between structure and function. As well, regions of Intron A contemplated for deletion or change are taught. It is reminded that no fixed number of species must be disclosed to satisfy the written description requirement rather a single disclosed species may be representative of a "product-by-function" genus when all members exhibit structural identity to a reference compound and when an assay is provided for identifying variants having the claimed activity. Therefore, applicants conclude that the multiple species disclosed are representative of the genus as a whole.

The arguments filed 5/24/04 have been considered but are not persuasive. While applicants argue that relevant identifying characteristics of the recited genus of fragments has been disclosed, applicants do not indicate where these characteristics are found in the specification and examiner has not been able to find passages that teach what the relevant identifying characteristics of the recited genus are. While multiple fragments have been detailed in figure 3-4 and a starting structure is described in Figure 1-3, the fragments comprise sequences having 100% sequence identity to contiguous sequences found at positions 1-25 or 1-51 and 775-820 or 741-820. The exception is the fragment disclosed in Figure 1C that contains 10 nucleotide substitutions in the sequences between 741 and 820 to generate the fragment of pCON3. Applicants state that regions of Intron A contemplated for deletion or change are taught. The recited passages teach on page 8-9 and 17-18 that the fragment comprises "sufficient sequences" from the 5' and 3' portions of Intron A typically positions 1-25 or 1-51 and 775-820

or 741-820 of full length Intron A which can tolerate internal deletions of about 10-750 nucleotides. Spacers may link the 5' and 3' ends. The paragraph bridging of page 9-10 teaches that the splice donor and acceptor sites are more amenable to change and the polypyrimidine tract is one where all the bases are Ts and Cs. The bridging paragraph of pages 19-20 teaches that the polypyrimidine tract may be optimized as shown in figure 1C. These passages do not provide a clear description of the structural or functional characteristics required for these substitutions to envision fragments comprising sequences having at least 90% sequence identity to contiguous sequences found at positions 1-25 or 1-51 and 775-820 or 741-820 that are able to direct expression of transcription to levels equal to or greater than full length Intron A. Therefore, applicants have not indicated that they are in possession of the recited genus.

Conclusion

Claims 2, 5-6 and 9-22 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria B Marvich, PhD whose telephone number is (571)-272-0774. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, PhD can be reached on (571)-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maria B Marvich, PhD
Examiner
Art Unit 1636

June 21, 2004


GERALD B. HEFFERS
PRIMARY EXAMINER